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California's Energy Future: A Framework for an Integrated Power Policy

Bay Area Economic Forum
A partnership of the Bay Area Council and the Association of Bay Area Governments

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Contributors to this report include McKinsey & Company, which prepared much of the supporting analysis on a pro bono basis (key contributors include Olga Perkovic, Bret Connor, Jon Welner, Stuart Colaco, Zander Arkin, and Rita Koselka), and the energy committee of the Silicon Valley Manufacturing Group, especially Jeff Byron, Joe Desmond, John Redding, K.C. Mares, and Justin Bradley. Many other individuals within the academic community, public interest organizations, and the power sector were helpful in providing a range of useful information and insight.

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Executive Summary

The California energy crisis is not over. Although prices on the spot market have fallen, the power sector is far from functioning well. While no blackouts have occurred in 2002, the state power system's limits were severely tested during the summer and blackouts in Silicon Valley were only avoided by voluntary curtailment from large users. The state is locked into overpriced, long-term contracts, and the regulatory environment and thicket of oversight bodies remain unwelcoming to private investment in new power generation. Without continued, timely investment in new generation capacity and related infrastructure and concerted conservation efforts, the state could face more power shortages. State actions to date represent only a bandage, not the full-scale reform the market needs. This reform should be based on an integrated power policy for the state, which ensures low-cost and reliable power, while supporting the state's conservation and environmental goals.

There is room for debate around specific policy measures, and this report is presented as a platform to stimulate that discussion in a fact-based manner. With that objective, we believe an integrated power policy should include:

- Developing a well-functioning and competitive wholesale market (between power generators and power distributors/retailers) with stable market rules that will attract needed investments in new capacity

- Restoring and maintaining the financial solvency of the state's utilities

- Allowing customers to choose among retail providers, thus encouraging more plan options, improved service, and lower prices

- Linking wholesale and retail markets through pricing structures that reflect the real costs of power based on time of use and that also promote conservation and energy efficiency

- Simplifying transmission rates and encouraging regional resource sharing, including possible participation in a western Regional Transmission Organization (RTO) to dispatch and facilitate greater regional efficiencies

- Reaffirming the mission of the investor-owned utilities as common carrier distributors with minimal risk, restoring their financial solvency, and creating performance-based incentives for their distribution systems

- Rationalizing the number, role, and size of state agencies responsible for setting and monitoring market rules and ensuring power system reliability

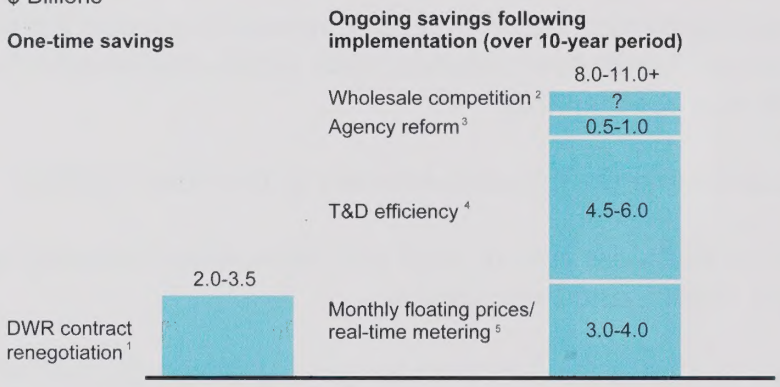
- Minimizing the cost of the long-term power contracts signed by the Department of Water Resources (DWR) during last year's crisis by using these contracted resources more efficiently, renegotiating these contracts, or disposing of these contracts through agreed-upon contract buy-outs or auctions.

The estimated savings to the ratepayers from transitioning to a carefully planned, integrated market for California and reducing the cost of the DWR contracts would include a one-time savings of $2 billion to $4 billion on the contracts and ongoing savings of over $8 billion over 10 years (Exhibit 1) from adopting a dynamic retail pricing structure, improving transmission and distribution efficiency, and reforming California's energy agencies. This is not to mention the broad benefits that a well-functioning market will bring by encouraging private investment and innovation and putting downward pressure on prices. Although forecasting power prices is difficult, restructuring in other power markets such as the Pennsylvania-New Jersey-Maryland (PJM) power pool, Alberta, Canada, and the United Kingdom has shown that energy prices can drop significantly.

EXHIBIT 1

IMPLEMENTING REFORMS COULD SAVE CALIFORNIANS BILLIONS

$ Billions



1 Assumes contracts (excluding Calpine Corporation's contracts) can be renegotiated at 70-80% of total nominal value of the out-of-market portion of the contracts
2 Includes IOU capacity, long-term QF contracts, state-owned generating plants, and municipal and federal generating capacity
3 Savings from reducing the PUC and ORA budgets to be comparable to other states and rationalizing the EOB and CPA
4 Assumes 15-20% improvement in maintenance, customer service, and SG&A (selling, general and administrative) from implementing performance-based rates
5 Benefit realized after real-time meters installed for all large C&I customers and interval meters installed for approximately 50% of small commercial and residential customers; numbers are rounded

Source: California State Controller's Office; press clippings, interviews; McKinsey analysis

The task is huge and recent events make it even harder for state leaders to make reforms in such a complicated but critical sector and do what is necessary to create a robust system that protects the interests of all Californians. The costs of not doing so, however, could be very high.

Foreword

This report outlines one possible framework for the future of California's power sector, supported by fact-based analysis of the experience of other markets that have successfully introduced competition into the electric sector. As with previous efforts by the Bay Area Economic Forum, this report seeks to provide a basis for an informed, constructive dialogue among all parties on the future of California's and the region's power policy. While some may disagree with the exact policy positions described in this report, the facts and data presented herein clearly outline the magnitude of the challenge and the opportunity in front of California policy makers.

California needs a clear, comprehensive power policy to ensure low-cost and reliable power over the long term. While this report is most concerned with overall policy direction, it also presents an integrated set of market structures. There are other workable approaches, and every option presented in this report need not be adopted in its entirety; each is open to discussion and debate. However, the energy sector is an interrelated system that must be considered comprehensively, and as learned with California's last attempt at market restructuring, piecemeal measures only increase the risk of another failure. In addition, California's power policy cannot exist in a vacuum and will be affected by the policies of neighboring states.

This paper builds on two earlier reports published by the Bay Area Economic Forum. The first report, "The Bay Area – A Knowledge Economy Needs Power," examined the causes of the power crisis in 2000 and 2001. It concluded that the crisis resulted from four major factors: (1) a substantial increase in the variable cost structure of the industry (natural gas prices and NOx credits); (2) lack of investment in new generation and related infrastructure over many years; (3) an unexpected confluence of events,[1] both natural and man-made, that further reduced the supply of power and increased demand; and (4) a flawed market design that did not allow forward contracts and kept retail prices fixed, thus enhancing generators' market power and providing no incentive for consumers to respond to rising wholesale prices by cutting consumption. Further to California's detriment, the flaws in the market design were so severe that they appear to have allowed generators and marketers the opportunity to take advantage of the supply/demand imbalance in 2000 to manipulate power flows and prices (although the Federal Energy Regulatory Commission – FERC – has yet to determine the magnitude of the impact of those actions).

The second report, "California at a Crossroads – Options for the Long-Term Reform of the Power Sector," examined the core policy question of whether market-based competition

1 These events include: lack of rainfall, higher-than-usual summer temperatures in 2000, unscheduled outages at thermal plants, gas pipeline bottlenecks that drove up gas prices, electric transmission bottlenecks that aggravated local power shortages, and poor coordination of maintenance schedules.

can be a successful model for the power sector. It described California's options for proceeding with a market-based model and analyzed the results of deregulation in other industries and power jurisdictions. The report concluded that, although other regulatory and ownership models are possible, well-managed competition is a viable model that can deliver major benefits: lower prices, more efficient operating and investment decisions, and improved product choice and service quality.

A Call to Action

STATE OF CALIFORNIA'S POWER MARKET

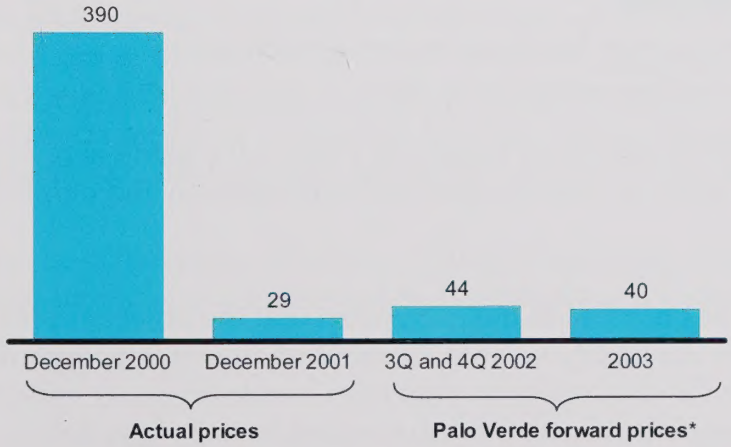
California's electric power system is broken and in urgent need of reform. Despite the wake-up call delivered by the energy crisis of 2000-2001, the state still does not have a clear and well-integrated power policy in place. Instead, the state has a complex patchwork of different agencies – each making critical decisions regarding the power industry – without a common vision or philosophy. The state's energy infrastructure is critical to its economy and the well-being of Californians, yet the current low level of investment in generation and transmission facilities – caused at least partly by the lack of a coherent, long-term strategy for managing the power system and lack of retail demand responsiveness – could lead to another power crisis. In the meantime, the high prices that ratepayers are paying and uncertainty generated by the status quo threatens to drive business out of the state and reduce the quality of life of all Californians.

Since the height of the power crisis, market conditions have improved substantially. Average wholesale prices have dropped dramatically – from $390/MWh in December 2000 to $29/MWh a year later (Exhibit 2). At the same time, reserve capacity (the amount of excess power available at peak usage time) has been steadily increasing and is currently projected to be as much as 20% in 2004 depending on weather conditions.[2] Forward prices (the expected future prices of electricity) for the next 2 years have dropped to about one-third of the average price in 2001 and better reflect the underlying cost structure of the industry. And after several years in which no new power plants were built in California, some 12 plants came on line in 2001, adding roughly 2,000 MW of new capacity (or 4% of

EXHIBIT 2

PEAK PRICES HAVE DECREASED SIGNIFICANTLY SINCE THE CRISIS

$ per MWh



* Transactions in the wholesale power market delivered at the Palo Verde switchyard in Southeastern Arizona. Peak prices as of April 30, 2002

Source: *Platts; MegaWatt Daily;* Bloomberg; McKinsey analysis

2 Assumes ongoing interruptible demand programs. Excluding interruptibles, the reserve margin is projected to be 17% in 2004.

the total peak demand in California) to the system.

Californians rallied to combat the state power crisis by conserving energy in 2001.[3] This drive to use energy efficiently, especially given the continuing low level of new power supply development, must be continued. However, conservation levels are already deteriorating as the crisis has abated. By some estimates, conservation levels dropped by one-third between 2001 and 2002. Silicon Valley's peak load is back to its 2000 levels, after a 9% reduction in 2001.

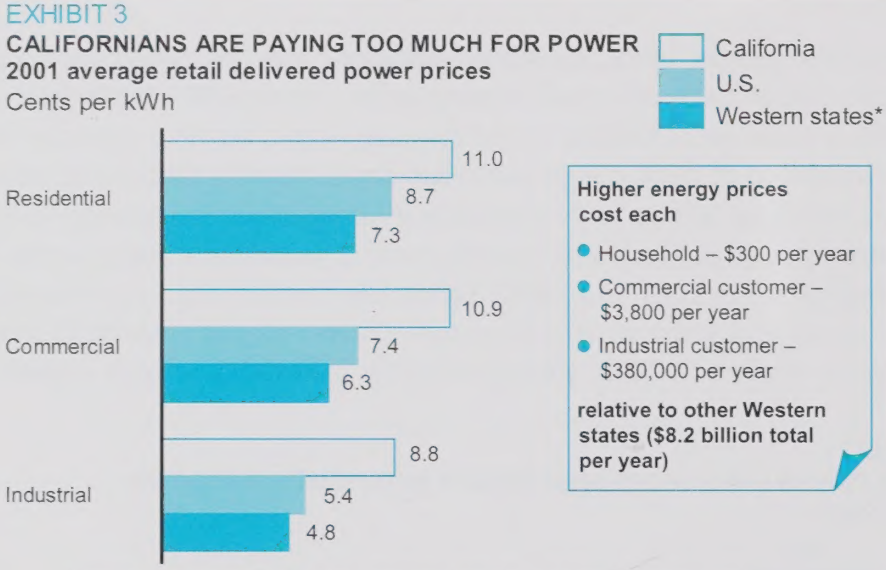
Policy makers face a number of important challenges. First, California electricity prices remain among the highest in the country. In 2001, residential prices were 26% higher than the national average and 51% higher than the average of other Western states. Commercial and industrial customers also paid significantly more than their counterparts around the country (Exhibit 3). These high prices have a very significant impact on the quality of life

EXHIBIT 3

CALIFORNIANS ARE PAYING TOO MUCH FOR POWER

2001 average retail delivered power prices

Cents per kWh



* Includes Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming

Source: *Platts; MegaWatt Daily;* Bloomberg; McKinsey analysis

of Californians. In addition to the direct impact on ratepayers, high energy prices deter business investment in California and dampen economic growth and employment in the state.

Second, the power crisis has reinforced the perception that the power supply in California is unstable and that prices are highly volatile. Continuing uncertainty regarding the price and availability of power for consumers accompanies a state economy still struggling to overcome a major economic slowdown, a mushrooming state budget deficit, and a

3 A recent Lawrence Livermore National Lab report documented the effect of conservation in 2001.

worsening perception of California's business climate. In this environment, secure and competitively priced power becomes a key economic issue. Until the state addresses this concern by adopting a coherent, long-term power policy, businesses – especially those that require substantial amounts of energy or are highly dependent on reliable energy, such as technology firms – will be further deterred from investing in California.

Third, ongoing regulatory uncertainty in the state deters new investment in power generation. A substantial number of power plants were cancelled or tabled in 2001, as well as over the course of 2002 (over 10,000 MW in 2001 and more than 9,000 MW so far in 2002). Much of this is driven by normal attrition and the current industry downturn, but it is also due to the regulatory maze and uncertainty that exists in the state. Confusion over the direction the state intends for the power sector and the level of competition it will allow is made worse by the large number of state and federal agencies that have authority over the power industry in California and their history of inconsistency. This is a serious issue. Without the ongoing addition of new capacity and the institutionalization of energy conservation measures, California will not meet growing demand for power over the long term and will once again face shortages similar to those experienced during the recent crisis. It is imperative that the state develop a long-term and sensible power policy – one that attracts investment and protects consumers – soon.

AN INTEGRATED FRAMEWORK

California's goal should be to create an electric power system that: (1) results in low overall costs for consumers; (2) ensures the reliability of the electric system; (3) provides customers with choices about products and services they choose to consume and pay for; (4) promotes environmental stewardship consistent with the environmental goals of the state; and (5) brings the regulatory efficiency and clarity to attract needed capital while protecting ratepayer interests.

We believe that well-managed competition is the best approach to achieving these goals, given the poor record of investment decisions under the traditional regulated environment, the wholesale deregulation process that has already been initiated, and the benefits that well-designed competitive markets have demonstrated in other industries and other jurisdictions. The recommendations to implement this vision are:

- Low cost can be achieved by allowing wholesale and retail competition. As demonstrated in one of our prior reports, "California at a Crossroads – Options for the

Long-Term Reform of the Power Sector," introducing robust competition has generally reduced prices and generated additional benefits in other industries, as well as in other regions that have created competitive power markets.

- **Reliability** can be achieved by: (1) creating a wholesale market attractive to investment; (2) linking wholesale and retail prices to provide transparency and curb demand in peak periods; (3) imposing reserve capacity requirements on all retail power providers; (4) using load as a resource (allowing the state to pay consumers to conserve when supply-demand balances become very tight); and (5) allowing customers to self generate if they choose to do so.

- **Customer choice** and a rich array of service options can be achieved by allowing/encouraging retail competition. Retail competition promotes innovation, efficiency, choice, and higher satisfaction, all while reducing costs.

- **Environmental stewardship** can be achieved by: (1) linking wholesale and retail prices and implementing time-of-use pricing to reduce consumption in periods of high demand; and (2) developing a cost effective plan for supporting the state's environmental goals (potentially including a green power option, a renewable energy requirement, and/or renewable credits trading).

- **Regulatory efficiency and clarity** can be achieved by rationalizing the state's energy agencies and eliminating offices that are redundant or lack clear mandates.

By implementing these recommendations, California can achieve all of the stated goals and obtain savings of more than $10 billion to $15 billion over 10 years. These savings can be achieved by re-opening the wholesale market and imposing capacity reserve requirements on retail suppliers, adopting a more dynamic retail pricing structure, improving transmission and distribution efficiency, and reforming California's energy agencies.

Finally, a successful, competitive market will need structures in place to prevent market abuses. The power market is especially susceptible to abuses of this type due to its particular characteristics – power is often considered to be a necessary commodity for everyone (with a value far above marginal production cost), power cannot be stored, and additions of new power plants or expansion of the transmission grid generally require long lead times. In addition, given the high capital intensity and traditionally low margins of the power generation business, generators make most of their profit during price spikes.

A recent Federal Energy Regulatory Commission (FERC) investigation has uncovered evidence that Enron's energy trading group manipulated wholesale energy prices during California's energy crisis through a series of complex trading strategies. There are accusations of other parties manipulating the market as well. Although unregulated generators each controlled no more than 8% of the production capacity in the California Independent System Operator (ISO)-controlled area during the crisis in 2000, that amount would have been sufficient to exercise market power since reserve margins fell to 3.5%. Regardless of the veracity of these allegations, it would be naïve to ignore the problem of market power and the difficulties of creating a competitive market when there is limited flexibility in both supply and demand.

The integrated solution that is described in this document has several elements that should work to minimize the likelihood of market power abuse. These include: a liquid spot market, forward bilateral markets, capacity markets, price caps, reserve requirements for retailers, "must-offer" provisions, and demand responsiveness measures.

There have been concerns raised by some analysts regarding the concentration of gas companies serving California and the management of the gas transmission capacity that brings natural gas to California. As highlighted in one of our previous reports, "The Bay Area – A Knowledge Economy Needs Power," California's gas prices broke from the national trend during 2000. Accusations have been made that El Paso manipulated the gas market. It is clear that gas prices have significant impact on power prices in California. Promoting an integrated gas and power policy needs to be a priority.

There are alternatives to competition. As demonstrated in our prior report, "California at a Crossroads – Options for the Long-Term Reform of the Power Sector," regulated industries often maintain high levels of reliability but at significantly higher overall prices due to overspending on operations and capital investment. By contrast, well-managed competition tends to promote greater efficiency, more innovation, better service, and lower cost, but can also bring more price volatility. Adopting a more complete market-based approach will require political courage from the state's leadership. The power crisis has caused many to reject the idea of "deregulation" altogether. However, as demonstrated in our prior reports, the crisis resulted from a flawed market design, not competition per se. While market abuses contributed to the crisis, a system can be designed with safeguards so that Californians reap the benefits of competition without reliving the mistakes of the

past. We encourage leaders and policy makers to move forward by solving the state's energy problem through a well-crafted set of market-based reforms. A competition-based system governed by a well-designed regulatory structure serving consumers, ratepayers, and taxpayers and protecting against market abuse, is the best path forward.

Elements of an Integrated Policy

The following is an integrated model for a competition-based power sector that would achieve our vision of long-term, low-cost, reliable power. The elements are structured to work together to make the vision a reality for Californians. There are other reasonable alternatives. However, the energy sector is an interrelated system that must not be considered in a piecemeal fashion or through the cobbling of political compromises that will only increase the risk of another failure. These policy suggestions should provide a basis for an informed, constructive dialogue among all parties on the future of California's power policy. Policy makers should also not forget that California's power policy cannot exist in a vacuum and needs to be coordinated with both federal policies and those of neighboring states.

ESTABLISH A COMPETITIVE WHOLESALE MARKET WITH SAFEGUARDS TO PREVENT ABUSE

A strong wholesale power market is the best way to establish a fair value for power at any given time, provide efficient signals for capacity needs, and promote lower prices over the long term. The end-state for a competitive wholesale market should include a spot energy market, forward contracts, and a capacity market. A spot market allows power to be purchased in real time (when needed) and provides price signals to balance short-term supply/demand, while forward contracts provide price stability and allow generators and customers to manage price volatility. Capacity markets provide signals to generators when new supply (generation) is needed. The spot market does not have to be large to function effectively. In 2000, spot transactions represented 18% of the Pennsylvania-New Jersey-Maryland (PJM) market and 24% of the New England Power Pool (NEPOOL) market. Neither experienced price volatility as extreme as in California, nor did either experience blackouts.

Steps to an Effective Wholesale Market

The wholesale market in California, where power generators sell power to retailers (today, the existing utility companies) and enter into agreements for new generation development, has been largely discontinued. There are neither forward markets nor a capacity market, and most of the power is procured by the state through the

Department of Water Resources (DWR) contracts.[4] Only a tiny spot market remains,[5] managed by the state's independent system operator (ISO).

To develop a successful wholesale market over the long term, all unregulated and non-DWR power should be sold into a central power pool with the objective of dispatching lowest cost generation first. However, in the short term, contracted power might need to be dispatched first, to minimize the overall cost to the state of holding these contracts, with the spot market kicking in when demand exceeds the supply already purchased by the state.[6] As the spot market becomes deeper over time, retail providers should be allowed to sign forward contracts with generators. Because companies prefer predictability in their earnings streams, forward contracts are important to make the market attractive to participants by mitigating their market price risk. Retail providers should ultimately be responsible for securing and managing their own power supply, which should include both forward contracts and spot purchases, and they should take responsibility for the associated risks and benefits.

Over time, the state should not build, own, or operate power plants. The $5 billion that the California Power Authority (CPA) has available for financing power projects could, however, be a vehicle to "jump start" needed new generation development. One method would be to fund cost-effective renewable and distributed generation projects in collaboration with (and owned by) the private sector. This activity should be kept to a minimum to ensure it does not deter critical private investments in the power sector. The best role for the state will be to leverage the CPA's funding authority primarily to attract private capital back to California's electricity infrastructure and not to become the default owner/operator of all new generation resources.

In addition, the state should streamline the permitting and other regulatory processes for siting generation and transmission facilities. Further, in the event of a state of emergency, the state should be able to "fast track" generation and transmission development.

The ISO should create and administer a capacity credit market, consisting of a short-term (e.g., month ahead) and longer-term (e.g., one- or three-year period) markets.[7] The capacity market will enable retail providers to procure reserve requirements and give a transparent, market-based price for capacity. Similar capacity markets currently exist in PJM, New York, and New England. A well-functioning capacity market should ensure that reserve margins are maintained by compensating some generators for keeping plants available that are not dispatched in the short term. Until a capacity market in California becomes liquid, the Public Utilities Commission (PUC) could approve contracts for new capacity between generators and utilities that have gone through a competitive bid process and have been reviewed for prudency and reasonableness. AB 57, recently signed

4 The DWR contract obligations and responsibility for power procurement are in the process of being transferred back to California's investor-owned utilities.

5 The California Energy Commission estimates that the spot market in 2002 will provide 8% of the capacity needed to serve peak demand and by 2004 will effectively disappear.

6 See Chapter 3 for description on how to manage the existing contracts more efficiently.

7 FERC's Standard Market Design includes provision for a capacity market.

by the governor, allows utilities to enter into long-term contracts without retroactive prudency reviews, which is a step in the right direction. The utilities would be allowed to recover their capacity reserve procurement costs through customer rates. For the capacity market to be created, the credit-worthiness of the utilities needs to be restored.

Preventing Market Abuse

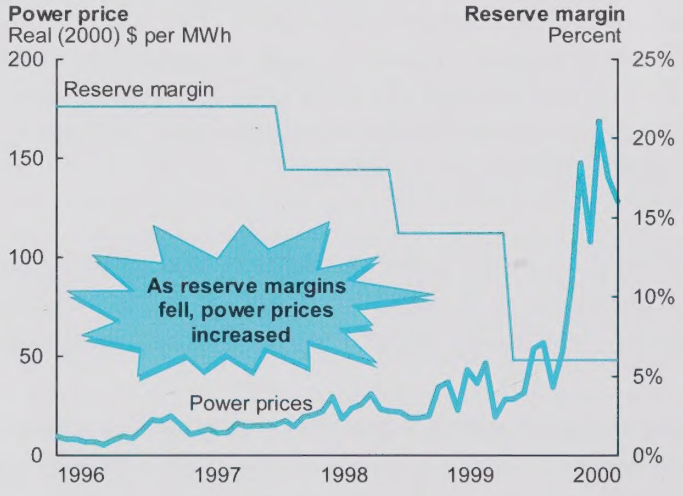
A well-functioning wholesale market will be at least partly self-regulating, as competitors police each other. However, several other elements are needed. These are concentration limits, a capacity reserve requirement, a West-wide floating price cap, and "must offer" provisions.

FERC now limits the concentration of power generation to no more than 20% of the market. This is probably too high, as the situation in California during last year's crisis demonstrated. FERC is currently in the process of determining a more appropriate limit.

EXHIBIT 4

PRICES SPIKE WHEN RESERVE MARGINS ARE LOW

Alberta Power Pool – no required reserve margins



Source: RDI; Alberta Power Pool; Alberta Department of Energy

A capacity reserve requirement for retail providers will act to ensure appropriate reserves over time. If California had adequate reserve capacity in 2000 and 2001, the impact of the power crisis would have been much less severe, since a healthy reserve capacity helps to ensure lower price volatility and lessens the possibility of market abuse. When reserve margins fall in markets without mandatory reserve capacity, prices tend to spike significantly. (Exhibit 4)

A market-based, West-wide floating price cap should be retained. Although price caps are not desirable in a healthy market and are generally not an effective tool for controlling prices,[8] the unique characteristics of the power industry make a wholesale price cap a useful consumer protection device. A price cap should be seen as a transitional measure that can be removed when FERC has put in place effective wholesale market oversight, enforcement of market rules for all participants, and modification of market rules as the need arises to ensure a competitive market.

As learned in 2000, any price cap must be in place across nearby states so that available power is not driven out of California into higher-priced neighboring markets. Any price cap should be fair and should float with the underlying generator plant cost structure taking into account gas prices and the cost of environmental credits. Under the calculation methodology of the current price cap, there is concern among generators that in some circumstances, unreasonably low cap levels could be instituted (e.g., in response to a sudden decrease in available capacity from transmission lines going down or emergency maintenance of a large generation unit). The current methodology needs to be recalibrated to ensure that price caps are set high enough not to discourage investment and to allow generators to earn compensatory returns across the cycle.

In addition to the price cap, FERC has instituted a "must offer" provision across the West. This requires available generators to offer power to the state if they have available capacity. A mechanism such as this to prevent gaming should be continued. However, there are concerns that the existing rules surrounding FERC's must-offer provision have created unintended market distortions with regard to ancillary services. These should be reviewed and potentially revised.

As previously mentioned, given the regional diversity of the West, the wholesale market design in California needs to be harmonious with the markets in place in surrounding states to prevent distortions. To that end, California should embrace and help shape the FERC's Standard Market Design (SMD) initiative launched this past year to ensure a level playing field across the western power system.

ESTABLISH A COMPETITIVE RETAIL MARKET

California needs a healthy mix of retail supply options, including investor-owned utilities, municipal utilities, new market entrants, and additional supply from self -generation.

Retail choice should be re-introduced for all customers. As discussed in our prior report, "California at a Crossroads – Options for the Long-Term Reform of the Power Sector," well-managed retail competition can result in more service options, more innovation,

8 "The Bay Area — A Knowledge Economy Needs Power," demonstrated how price caps redirected power away from the California market, causing additional shortages and prices to remain higher longer.

lower prices, and better overall customer satisfaction. Currently the DWR contracts inhibit retail competition because their costs need to be recovered by the state from ratepayers, precluding lower-cost competitive power. For retail competition to exist, either the contracts need to expire or some form of allocation or exit fees need to be agreed on.

Open California Retail Power Market to Competitors and Jump-Start Competition with Default Service Auctions

Retail competitors should be allowed to offer power to consumers at unregulated, competitive prices. Competitors could offer power at fixed or floating prices and could bundle electric power with other products and services. Competitive retail suppliers should be allowed to require customers to stay under contract for a period of time prior to switching (for example, one year). This will allow competitive retailers to plan for their supply needs and prevent sudden customer switching as prices move against them. Retail providers should be responsible for managing their own portfolio of power supply, which would include both forward contracts and spot purchases, and would take on the risks and benefits associated with these activities.

If the utilities continue to provide retail service, it will be difficult for new market entrants to compete effectively. Should the market design fail to produce robust competition and real customer choice, one option is to create and auction off retail franchises.

In order to jump-start competition and enable new providers to achieve a sustainable scale, new competitors should have the opportunity to buy a large base of customers from incumbent utilities through "default service auctions."[9] In a default service auction, a large portion of an incumbent utility's territory would be put up for bid to competitive retailers. The winner would become the default service provider for these customers. Auctions for each customer block should be held on a staggered basis for a 3- to 5-year franchise. The auction would be for the procurement/supply franchise; the existing utilities[10] would continue to invest in and maintain their power distribution networks in exchange for a fair, regulated rate of return.

The winner of default service franchise should be allowed to charge a "fixed price" for providing its services, as well as to pass through its costs of buying power. Franchises should be awarded to the competitor who bids the lowest fixed price for providing procurement services to customers. The fixed price would include profit margin, overhead, customer service costs, and capacity reserve procurement costs. Default service rates would be the sum of the fixed price plus a pass-through charge for the cost of buying power.

9 Default providers are providers that customers will automatically be assigned to if they do not choose a competitive retailer.

10 Distribution companies will not be responsible for procuring power unless a competitive retail provider goes bankrupt and the franchise cannot be auctioned off to another provider. In that case, the distribution company will be the "provider of last resort" with energy costs passed through.

The default power rate should be based on time-of-use (peak/off-peak) pricing for residential and small commercial users, and real-time pricing for large commercial and industrial users. Default service providers should be allowed to offer additional pricing options to customers, in addition to the default service rate.

Default service auctions would kick-start retail competition in California if there is adequate interest by private power retailers. Given the current regulatory environment in California, this may not be the case. If default auctions are not feasible, an alternative model is to adopt the "core/non-core" model successfully implemented by California's gas utilities. Under this model, the incumbent utility would continue to provide default service based on peak/non-peak market pricing for residential and small commercial customers only; industrial and large commercial customers would have to find a retail provider. This approach only offers the most sophisticated customers retail choice and would not allow residential customers to reap the benefits of increased choice and the product/service innovation that retail competition should create. However, it could provide consumers with a simpler and more stable service environment.

Across all of these approaches, low-income rate assistance, emergency facilities guarantee programs, and appropriate energy efficiency programs can and should be maintained.

Promote Environmental Stewardship

California is clearly one of the leading states in promoting renewable energy and energy-efficiency technologies. The Renewable Energy Trust Fund, which was recently extended through 2012, provides $1.35 billion in production credits and rebates for generators and consumers who utilize alternative technologies. A cost-effective, diversified portfolio of energy resources that includes renewable energy sources clearly has social benefits and is critical to achieving a sustainable power policy.

To achieve this goal, the target for the percentage of power production from renewables could be set at the current actual percentage statewide – 12% – and increased annually based on agreed policy objectives set by the California Legislature for implementation by the California Energy Commission (CEC).[11] SB 1078, recently passed by the Legislature and signed by the Governor, reflects this approach, by incrementally increasing the target for renewable energy by 1% annually to reach a target of 20%. The requirement to meet these targets will depend on the availability of state PIER funds to subsidize the difference between the renewable price and market price. Once retail choice is reestablished, retail suppliers should be allowed to trade renewable energy "credits" to meet state mandates, and consumers should once again be able to choose green options. Although

11 This could be very difficult to attain given the large amount of DWR power that is not from renewable sources.

environmental stewardship is critical for the long-term sustainability of the quality of life of all Californians, so is the economic health and attractiveness of the state. Therefore, the legislature should carefully balance the needs of these two elements when reviewing and developing environmental stewardship policies.

LINK WHOLESALE AND RETAIL MARKETS

Linking wholesale and retail markets (in other words, allowing retail prices to fluctuate with the cost of generating power as paid by the utilities or retail providers) is important because it reflects the scarcity of supply relative to demand. For example, supply is low when hydroelectric power is not available or when fossil-fuel power plants are off-line for maintenance. Demand may change due to lower winter temperatures or higher summer temperatures, as well as increase during the day when businesses are consuming power more heavily than at night. Wholesale prices change to reflect these supply-and-demand dynamics, but currently, in California, retail prices do not. For the supply and demand link to work well, it is critical to ensure that customers know when demand and thus prices are high so that they can curtail usage if they choose. This is analogous to discouraging drivers from hitting the roads at rush hour. If retail customers are not exposed to fluctuating wholesale prices under default service, there is no incentive for customers to conserve power or to shift their use away from periods when power is scarce.

Setting up fluctuating retail prices will require a transition. Right now, few residential customers have time-of-use (peak/off-peak) meters. Until they do, the simplest method to link wholesale and retail prices will be to adjust prices monthly. Many large commercial and industrial users have real-time meters in place, and the CEC spent an additional $35 million last year to install meters for all customers with a load greater than 200 kilowatts/hour. Once most residential and small commercial customers have time-of-use (peak/non-peak) meters and all large commercial and industrial customers have real-time meters, and retail competition exists, the "default" pricing methodology for customers should reflect time-of-use and real-time prices. The introduction of retail competition would also support many other rate options.

Prior to Completion of the Meter Installation

In the short term, retail prices should float monthly for all customers and reflect wholesale prices, just as they do in the gas industry and in a number of other electricity jurisdictions. This helps encourage a demand-side response to fluctuations in the price of power and requires customers to pay the true cost of power. Outside of California, 32 states have floating monthly natural gas prices and several states also have floating electricity prices. Electricity prices in New York City, for instance, change monthly based on the underlying

cost of spot market power. To prevent large price fluctuations for residential customers, price adjustments could be dampened through the use of a balancing account at the regulatory level (where savings in one month are applied to price hikes in another); however, the closer the match between wholesale and retail prices, the stronger and more appropriate the consumer response will be.

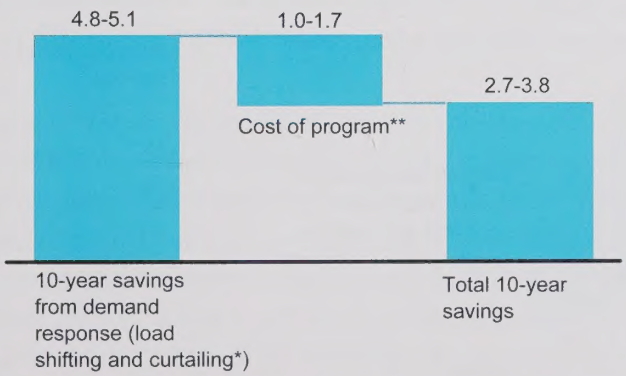
To enable more efficient floating prices over the longer term, the CEC should launch a program to install time-of-use meters for small commercial and residential customers and real-time meters at all large commercial and industrial facilities that still lack them. The deployment of residential customer meters should be phased in by first targeting loads that are at least the size of an average single home load.[12] Many small residential customers (e.g., apartment building dwellers in coastal areas) have such small loads that very little shifting and curtailment can occur. The savings from demand management for these customers may not cover the cost that would be incurred by deploying meters to them within a reasonable time period. However, as metering technology improves and costs decrease, this group of consumers should be considered for time-of-use meters as well.

The estimated cost of meter installation is $1 billion to $2 billion and should be financed through customers rates, which will have to be approved by the PUC. Conservation and load shifting is a public good and should be paid for by all ratepayers. Despite the up-front costs, the net benefits will be significant: expansion of real-time and time-of-use

EXHIBIT 5

CALIFORNIANS WILL BENEFIT IN MANY WAYS FROM DYNAMIC PRICING

$ Billions



Benefits of dynamic pricing

- Ratepayers would save approximately $270 million-380 million annually
- Fewer new peaker plants needed
- Gas demand reduced
- Environmental benefits (NOx reduction, water conservation, etc.)

* Assumes real-time prices will cause large C&I customers to shift 4-6% and curtail 1-2% of their load, and time-of-use prices will cause small C&I and residential customers to shift 5-7% and curtail 9-11% of their load

** Includes one-time real-time meter equipment capital cost and incremental maintenance costs for the remaining 70% of large C&I customers in California without meters and one-time interval meter equipment capital cost for 50% of small C&I and residential customers

Source: 1999 CalPX hourly data; interviews; McKinsey analysis

12 This would impact households with power bills of around $700 or more per year.

metering will save ratepayers approximately $270 million to $380 million per year on average (Exhibit 5) and even more if reserve margins tighten again. Small commercial and residential customers will receive most of this benefit with the remainder going to large commercial and industrial customers. In addition, it would encourage conservation. If peak load is reduced by demand shifting to off peak periods, there would be reduced need to build "peaker" plants (those that are turned on only in times of high demand but are less efficient power producers) and prices would be more stable as capacity reserve fluctuations would be smaller. Had real-time pricing been put in place in 2000, California might have saved well over $1 billion in energy costs.

Most Residential Customers Should Have Time-of-Use (Peak/Off-Peak) Pricing as Default Once Meters Are in Place

As soon as meters are deployed, the state should introduce time-of-use pricing (peak and off-peak) for residential customers.[13] This will encourage power users to reduce energy consumption during periods of high demand – rush hours – thus lowering the overall cost of power and reducing the need for additional capacity. In the long term – when retail choice becomes available – customers should also be able to select "fixed price" options from competitive retail suppliers. Time-of-use pricing is currently common in Europe and is increasingly being used in the U.S.; Puget Sound Energy in Washington is planning to expand time-of-use pricing for all of its customers.

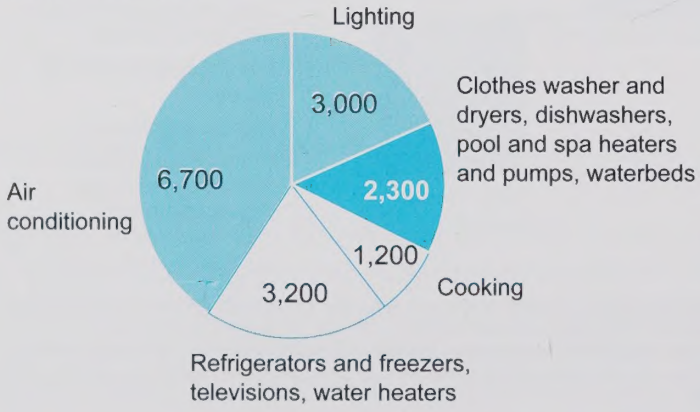
Initially, regulators will have to determine time-of-use prices in an administrative fashion, using system marginal costs. Once the wholesale spot market is re-established with

EXHIBIT 6

MORE THAN 2,000 MW OF RESIDENTIAL LOAD CAN BE SHIFTED FROM PEAK USAGE

Residential coincident peak end-use electricity loads, 2000

100% = 16,400 MW



EXAMPLE

Shift/curtailment potential

Low

Medium

High

Source: California Energy Commission

13 Residential customers that did not receive time-of-use meters will continue to have floating monthly rates (like in natural gas).

adequate depth, the resulting wholesale prices can be used as the basis for setting both real-time (for commercial and industrial users) and time-of-use (for residential customers) rates. An intense marketing and consumer-education campaign should be used in kick-starting the transition.

Time-of-use pricing for residential customers is politically controversial. However, residential customers have more than 2,000 MW of discretionary peak load[14] (14% of total), which can be shifted to off-peak times (Exhibit 6). This is equivalent to avoiding the need for a large generation unit of the size of the Diablo Canyon nuclear power plant. In Washington state, a pilot time-of-use pricing program by Puget Sound Energy resulted in a 6% peak load reduction, with only modest peak/off-peak price incentives. Many residential customers may opt for simplicity over time-of-use cost savings and may prefer flat rates. Competitive retailers could offer tailored rate packages based on customers' individual consumption patterns. However, it is essential that time-of-use be implemented broadly to realize the significant economic and environmental benefits, to eliminate what are essentially subsidies to customers who use a large amount of energy during peak periods or rush hour, and to allow for "fair" sharing of installation costs.

Commercial and Industrial Customers Should Have Real-Time Prices as Default Once Retail Competition Is in Place

Default service to large commercial and industrial users should move to "real-time" pricing with hourly price fluctuations once retail competition is in place and other rate options are available from competitive retail providers. Prior to that, large commercial and industrial customers should be on time-of-use rates that are administratively determined.

Expand Programs to Use Load as Resource During Transition to Retail Competition

Another strategy for ensuring that supply meets demand in times of shortage is to use load as a resource or, in other words, to pay consumers not to use power when supply is short. This program was effective in the state's struggle to stabilize the market in 2000 and 2001. Utilities currently are allowed to pay their customers not to use power, or create so-called "interruptible" power agreements, in which consumers give utilities the right to stop providing power under certain conditions. All such programs are currently centralized and administered by the ISO in cooperation with retail providers. But they should also be expanded by creating a central market where users can bid in real-time what they want to be paid for curtailing their use. This program would be particularly effective during the transition to retail competition. Large commercial and industrial customers would not be charged real-time prices yet. Using load as a resource, however,

14 This includes clothes washers and dryers, dishwashers, pool and spa heaters and pumps, and waterbeds.

would be the closest to a "real-time," demand-management program. Once retail competition is in place and adequate price signals exist, this program could be discontinued.

Introduce Capacity Reserve Requirements

In order to decrease price volatility and encourage the development of new capacity, retail providers should be required to hold capacity reserves in excess of their expected load at peak demand using the capacity market created as part of the wholesale market reforms. This would lessen the threat of blackouts, provide a cushion for demand growth, signal capacity needs to generators, and dampen price spikes when power demand is high. Capacity reserve requirements should be based on monthly peak demand. Reserve requirements should be enforced/checked on a year-ahead and month-ahead basis.

Allow Self-Generation

As distributed generation technologies improve, many customers may elect to generate their own power. The retail market needs to have adequate provisions for customers to self-generate if they choose to do so, which will include clarifying system exit conditions, agreeing on utility interconnection protocols, and establishing appropriate standby/backup rates. There should also be provisions that allow utilities to buy back the excess power from self-generation facilities, with full cost recovery.

IMPROVE TRANSMISSION DISPATCH AND PLANNING

To promote efficient power flows, ensure reliability of power, and send proper signals for generation development, the state should take steps to improve the coordination and pricing of electric transmission across the Western region, as well as improve the overall planning and siting process for both electric and natural gas transmission.

Improve Day-to-Day Dispatch

The California ISO should work proactively with other ISOs to simplify transmission rates and resource sharing in order to promote greater resource efficiency through a standardized system. On average, 15% to 20% of California's capacity is imported from out of state.

Over the long term, the state should seriously consider joining a Western Regional Transmission Organization (RTO) to promote the highest overall efficiency. Doing this can be politically complicated, but as the power market in California becomes more liquid and

there is less state involvement, this option may become more politically tenable as well as important from an efficiency standpoint. (See our prior report, "California at a Crossroads – Options for the Long-Term Reform of the Power Sector" for more on this topic.)

Plan for Transmission in an Integrated Manner

There is a significant problem with electric and gas transmission siting and planning today. There are still major electric transmission constraints due to a history of failed transmission projects. And, if planned expansion of gas transmission and storage capacity does not occur, then California risks gas price increases (as occurred in 2000) and shortages as well.

To address the bottlenecks, all electric and gas transmission siting and planning should be integrated with power-generation approval and planning. California needs to recreate an integrated resources planning process, including potential substitutes for transmission projects via new generation investments, renewable energy sources and distributed generation. In several other states, a single agency is in charge of planning for both generation and transmission.

Given the regional nature of power transmission, the agency responsible for integrated resource planning (e.g., an enhanced CEC[15]) should also help to facilitate the siting and ratemaking processes for transmission with the Federal Energy Regulatory Commission (FERC). If this agency identifies a major electric transmission constraint, it should issue a recommendation to build new capacity and request proposals from market participants. This agency should also identify potential substitutes for transmission projects via new generation investments, including renewable energy sources and distributed generation.

IMPROVE DISTRIBUTION EFFICIENCY

One of our prior reports, "California at a Crossroads – Options for the Long-Term Reform of the Power Sector," highlighted how distribution regulations could be restructured. Although distribution will remain a natural monopoly regulated by the state, there is significant opportunity to remove inefficiencies. The distribution systems in California should be run by the current utilities under a regulated performance-based rate (for example, price or revenue caps). Under such a rate structure, the utilities would be allowed to keep a portion of any profits they earn as a result of lower-cost operations. An effective model used in the U.K. is a distribution price cap. Under this model, distribution prices are capped every 5 years, with caps that include annual inflation and consumer growth adjustments and that require efficiency improvements. Under this system, distribution companies in the U.K. reduced their costs-per-unit of electricity delivered by 31% between March 1991 and March 2000, while prices to consumers per unit delivered fell by 20%. If California were to experience savings of 15% to 20%, distribution

15 See later section for discussion on regulatory agencies.

companies and ratepayers would save $450 million to $600 million annually.[16]

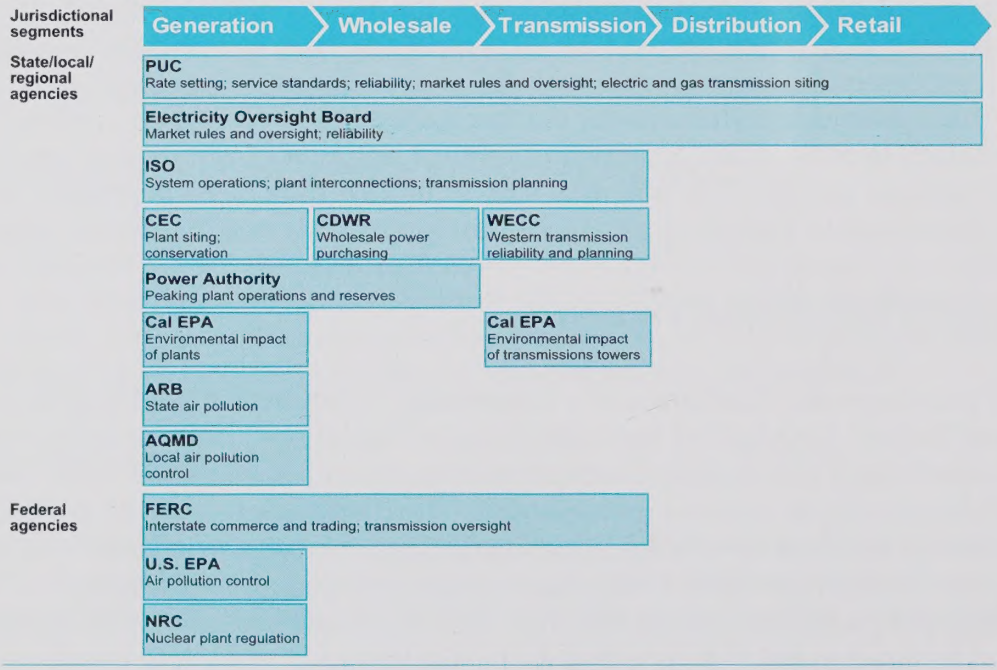
Such performance-based rate structures and the freeing of the distribution utilities from their procurement obligations (if the default service franchise is sold) would reduce the need for retroactive prudency reviews as well, offering opportunities to overhaul the current, highly contentious regulatory process in California. They will also enable utilities to lower their cost of capital by reducing the aggregate amount of risk they bear, further reducing rates.

REFORM CALIFORNIA'S ENERGY REGULATORY AGENCIES TO IMPROVE EFFICIENCY AND CLARITY

There are currently too many agencies – at least 13 – with responsibility for administrating and regulating California's energy sector, and their areas of responsibility are overlapping and confusing (Exhibit 7). The state should take steps to rationalize these agencies, clarify roles and accountability, reduce uncertainties, and increase effectiveness to facilitate

EXHIBIT 7

CALIFORNIA POWER AGENCIES HAVE OVERLAPPING RESPONSIBILITIES



16 Includes distribution and transmission (non-capital) improvements. 2000 distribution operations and maintenance, customer service and SG&A (selling, general, and administrative) costs for the three California utilities were $2.7 billion. Transmission operations and maintenance was $0.3 billion.

investment in the state. An integrated energy plan should reflect a policy statement or guideline, developed by the legislature and governor, that would guide the state's energy agencies and against which the regulatory agencies would be measured. In the near term, the key agencies responsible for the electric market, the CEC, the California Public Utilities Commission (CPUC) and the CPA should seek greater coordination and functional integration while their roles are clarified. In recent months, several joint working sessions have occurred among these bodies, a step in the right direction. Until a more formal restructuring can take place, these informal mechanisms should continue.

Rationalize the CEC, CPA, and EOB and Clarify Areas of Responsibility

The CEC and CPA have significant overlap of responsibility and inconsistent decision-making. Over the long-term the two agencies should be integrated. As an interim measure, they should work together so that their responsibilities are met and leadership is less diffused.

The CPA, with a $5 billion financing authority, is responsible for ensuring sufficient surplus of electricity. Currently, the CPA has focused its efforts on supporting renewable energy sources within the generation mix and installing meters to manage consumer demand, as well as facilitating better planning among all the agencies. The mandate and functions of the CPA overlap with the responsibilities of the CEC. These two agencies could be integrated and an enhanced successor put in charge of all resource planning and siting, including power generation and electric and gas transmission. Consolidating all integrated resource planning into one agency would help ensure that overall system needs are met. This agency should also identify potential substitutes for transmission projects (such as distributed generation programs) and encourage the development of a diversified portfolio of generation assets to minimize reliance on any single fuel and promote overall lower costs. In the short term, this agency could also be responsible for the financing of cost-effective renewable and distributed generation projects in partnership with the private sector.

The Electricity Oversight Board (EOB) was established to oversee and appoint members of the governing boards of the ISO and Power Exchange (PX) and to serve as an appeal board for majority decisions of the ISO. Since FERC can fulfill these roles, the EOB could be dissolved. This would save the state the current EOB budget of $4.5 million per year.

Refocus the CPUC's Areas of Responsibility and Separate the Office of Ratepayer Advocate (ORA)

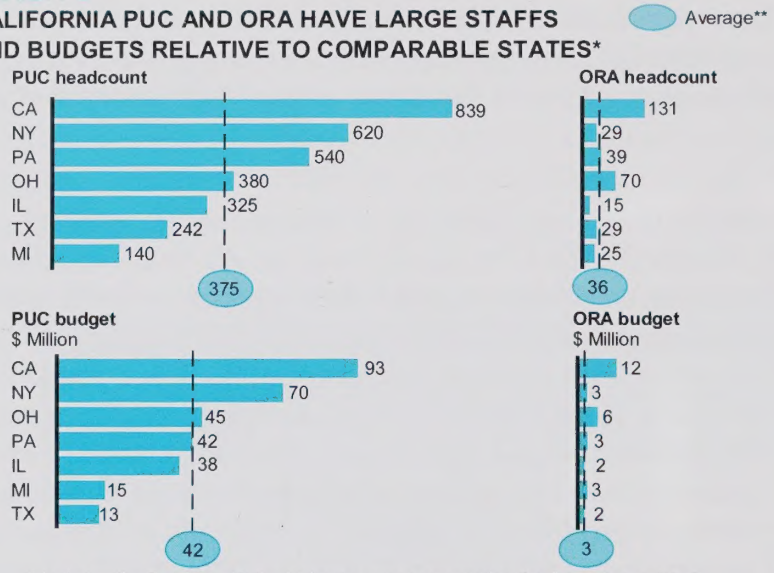
California is unique in the country in having its PUC also serve as the consumer advocate,

which creates real and perceived conflicts of interest with their administrative law function. The CPUC should be refocused to set distribution and retail rates, monitor service quality, and enforce/adjudicate administrative law. This would eliminate these conflicts of interests. California should adopt the structure used in other jurisdictions and move the ORA from the CPUC to an independent entity such as the California Office of Consumer Affairs.

In addition to role clarity, the CPUC should review its current performance compared to other PUCs across the country. The CPUC budget of $93 million per year, excluding the ORA, is roughly double the average of the six largest states (based on electricity consumption) with competitive power markets (New York, Texas, Pennsylvania, Michigan,

EXHIBIT 8

CALIFORNIA PUC AND ORA HAVE LARGE STAFFS AND BUDGETS RELATIVE TO COMPARABLE STATES*



* Includes the 7 states with the highest power consumption that have deregulated
** Excluding California
Source: State PUC filings and Web sites; Regulatory Research Associates; McKinsey analysis

Ohio, and Illinois). This seems even more out of balance considering that there are five fewer investor-owned utilities in California (three) than the average from these other states (eight).[17] While the largest in the country, the CPUC is one of the lowest performing, according to the Regulatory Research Associates (RRA).[18] RRA rates the CPUC in the bottom third of all PUCs, and the worst of the six PUCs in the above peer group. The California ORA is the largest as well. It employs twice as many people as Ohio, three times as many as New Jersey, and five times as many as Texas. Paring back the CPUC and reducing the ORA to more closely match these other states would save $40 million to $70 million per year (Exhibit 8).

Discontinue DWR's Involvement in Purchasing Power

The state's utilities must be restored to creditworthiness. AB 57 restores the utilities' historic

17 Although PUCs have broader roles than just utility oversight, the responsibilities of the above-mentioned PUCs, beyond the utility oversight, vary only slightly state by state.

18 RRA is an independent research organization that provides research to the state utilities. The agencies are rated from the perspective of an investor buying a utility security.

role in procuring power, and removes the DWR from a power-buying role effective in January 2003. The immediate impact will be modest since, due to DWR's contracts, the net short in the state's power supply position is small. Those contracts should also be allocated to the utilities to manage (with guaranteed cost recovery). These steps are essential to removing the state from the business of procuring and dispatching power, and to enabling the state to return to a more appropriate policy-making and regulatory role.

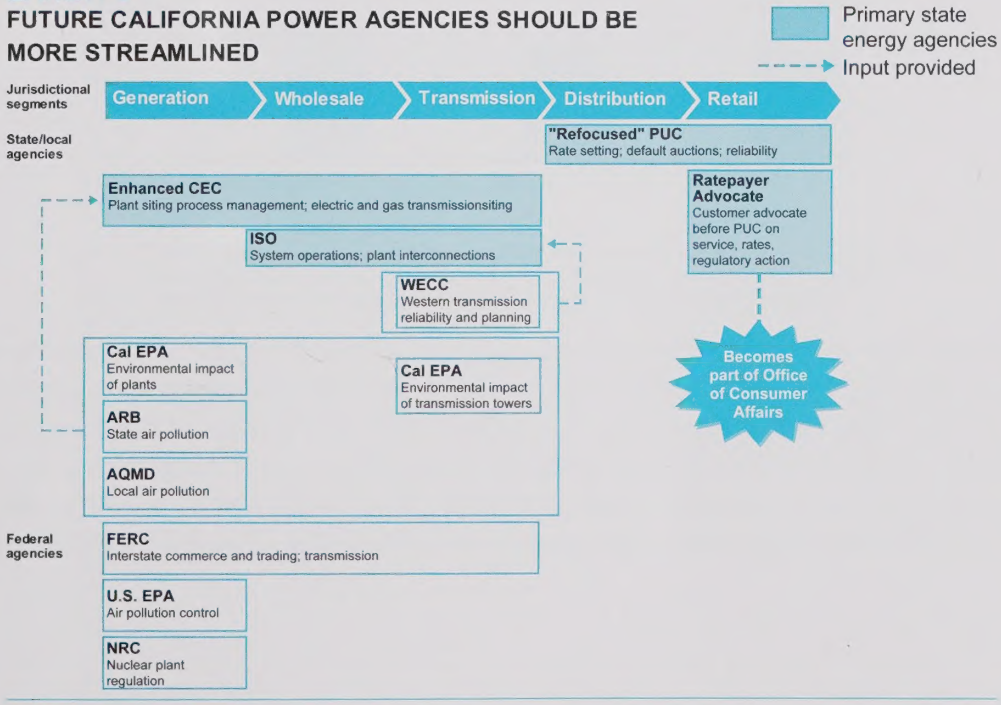
Take Steps to Bolster the Independence of ISO

It is crucial that the ISO be fair and independent. Currently, the governor appoints ISO board members annually for 1-year terms. To provide more independence and continuity, board members should be appointed for staggered 5-year terms. The ISO has a vital operational role in dispatching and balancing power over the grid, as well as maintaining the transmission system, and must be viewed as fair and consistent. In addition, in the future the ISO should play the role of assuring that contracts in the capacity reserve market are valid and usable.

The regulatory structure resulting from the above measures would be less complex and would provide a streamlined system to improve the effectiveness of decision making in the California power market (Exhibit 9).

EXHIBIT 9

FUTURE CALIFORNIA POWER AGENCIES SHOULD BE MORE STREAMLINED

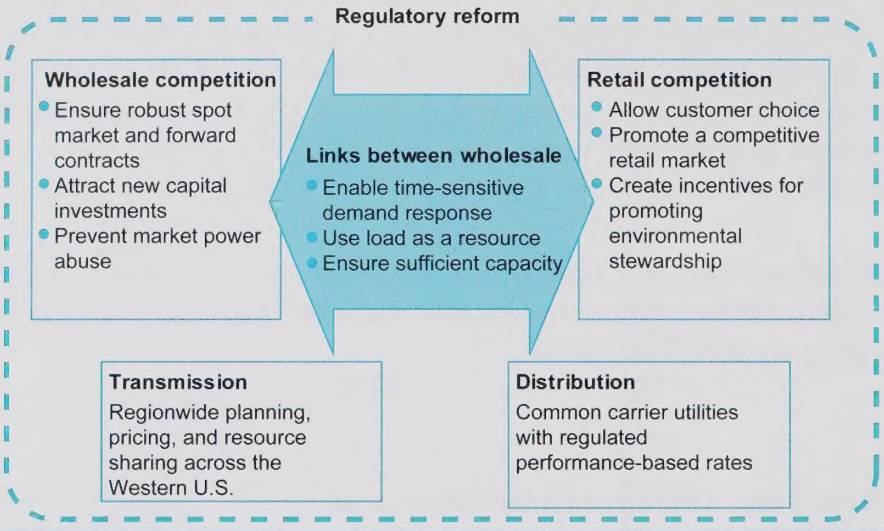


* * *

This proposal for an integrated, competition-based power market (Exhibit 10) would ensure low-cost, reliable power and prevent market abuse, introduce customer choice, encourage conservation and other aspects of good environmental stewardship, and provide a fair and attractive environment for investment.

EXHIBIT 10

THE ELEMENTS OF THE INTEGRATED POWER POLICY NEED TO FIT TOGETHER


Regulatory reform
Wholesale competition
Ensure robust spot market and forward contracts
Attract new capital investments
Prevent market power abuse
Links between wholesale
Enable time-sensitive demand response
Use load as a resource
Ensure sufficient capacity
Retail competition
Allow customer choice
Promote a competitive retail market
Create incentives for promoting environmental stewardship
Transmission
Regionwide planning, pricing, and resource sharing across the Western U.S.
Distribution
Common carrier utilities with regulated performance-based rates

A Key Challenge

POWER CONTRACTS HELD BY THE STATE

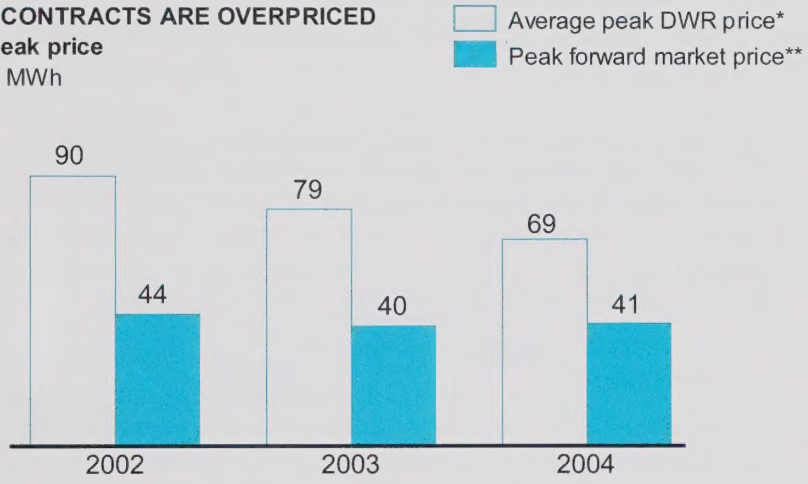
In an attempt to bring stability back to the power market during the crisis of 2000-2001, the state signed many long-term contracts with private power providers. While the contract prices were generally lower than spot prices at the time, they are much higher than the cost to produce power today and are well above projected forward market prices[19] (Exhibit 11). As a result, over the life of the contracts, the state will likely overpay for power by an estimated $8 billion to $13 billion in today's money (Exhibit 12).[20] To put that in perspective, it is over one-third of the state's annual spending for all kindergarten through 12 education in California and roughly half of the state's current annual budget deficit.

EXHIBIT 11

THE DWR CONTRACTS ARE OVERPRICED

Average peak price

Dollars per MWh



* Volume-weighted average estimated based upon all fixed-price and floating-price DWR contracts

** Based upon North Path 15 for 2002 and 2003. 2004 estimates based upon a 2% CAGR

Source: Bloomberg; California State Controller's Office; press clippings; McKinsey analysis

Before these contracts were created, all wholesale power in California was purchased via a power exchange. Generators who had power to sell posted it at the exchange and were paid the price of the marginal bid. This created a liquid market that reflected the price of power at any given time. Since the signing of the long-term contracts with the state's Department of Water Resources (DWR), however, the wholesale market has essentially shut down. Without a liquid spot market to allow price discovery, retail choice will largely

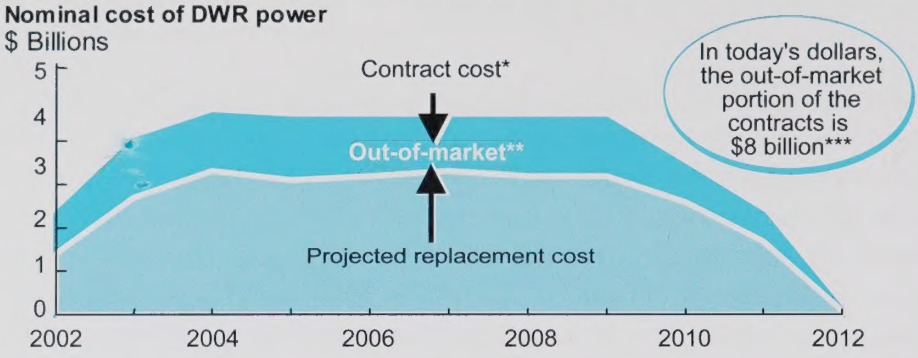
19 From February 2001 to August 2001, the DWR contracts did "save" the state approximately $2 billion in energy costs, calculated as the difference between the forward price at the time each DWR contract was signed and the actual contract price.

20 In today's dollars, the DWR contracts are approximately $8 billion out of market relative to replacement power costs and $13 billion out of market relative to current and projected forward prices.

EXHIBIT 12

KEY CHALLENGE: COSTLY LONG-TERM CONTRACTS

Nominal cost of DWR power



* Based upon available data from DWR. Floating price contracts were assumed to be $70 for peak contracts and $50 for baseload contracts

** New entry price based upon weighted average of new baseload (6,700 heat rate) and peaker (10,000 heat rate) plants in proportion to DWR contracts using Henry Hub natural gas forward prices with $0.35 basis differential

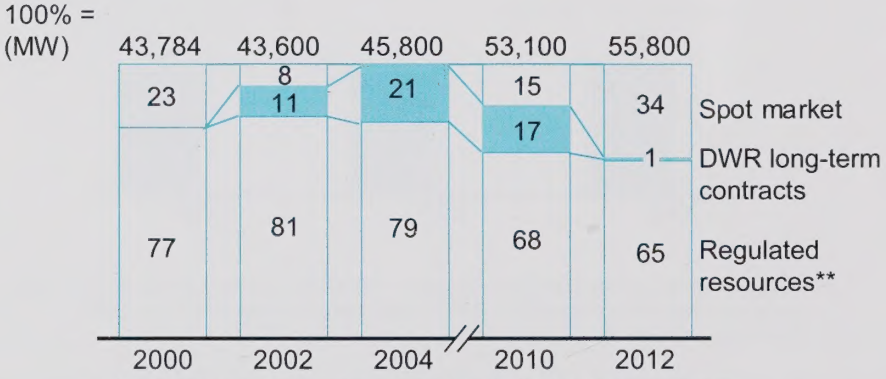
*** Contract value as of 4/31/02. Assumes 7.57% discount rate (average WACC of Calpine, Sempra, Dynegy, Duke Williams, and Mirant)

Source: Bloomberg; California State Controller's Office; press clippings; McKinsey analysis

EXHIBIT 13

THE DWR'S PORTFOLIO OF LONG-TERM POWER CONTRACTS WILL LIMIT THE SIZE OF THE COMPETITIVE SPOT MARKET

Capacity used to serve peak demand*



* 2002 demand based on average demand from 1996-2001. Subsequent years based upon 2.5% annual growth. Figures for the California ISO region

** Includes IOU capacity, long-term QF contracts, state-owned generating plants, and municipal and federal generating capacity

Source: California Energy Commission; California State Controller's Office

be precluded. Roughly 92% of California's power within the California ISO is now automatically dispatched from regulated sources (e.g., utility-owned generation) and the DWR contracts; only 8% is purchased on the open market (Exhibit 13). Because the state wants to recover the cost of these contracts, it cannot allow consumers to freely buy power from lower-priced sources. Instead, the state requires that consumers buy

power from the high-priced DWR contracts first. It is possible to allow retail competition before the contracts expire by allocating a pro rata share of the DWR contracts to each retail provider or by requiring customers to pay an exit fee in order to avoid using the high-priced power. The state would then use the allocated payments or exit fees to pay off its obligation under the contract. However, agreeing on the value of these contracts and then fairly allocating the cost among ratepayers or agreeing on the exit fee will be a challenge.

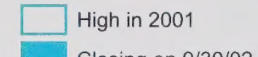
This should not, however, stop the state from pursuing discussions with each of the contract holders to restructure/renegotiate the contracts as soon as possible. As the recent negotiation with Calpine Corporation and other generators shows, win-win agreements can be reached that will allow the state to save money and competitive wholesale and retail markets to be established sooner.

ACCELERATE RENEGOTIATION OF CONTRACTS

Last spring, the state announced a successful renegotiation with Calpine Corporation, whose contracts represented over 25% of the total value of DWR contracts. The new agreement will lower the nominal value of the contracts by $3.5 billion[21] and shorten the duration by 8 years. The state has built on this success by aggressively negotiating with the remaining generators. With all of the pressure on generators – legal actions by the state, FERC's encouragement of settlements, market design uncertainty, capital markets pressures (Exhibit 14), and their current need for liquidity and cash – they may have

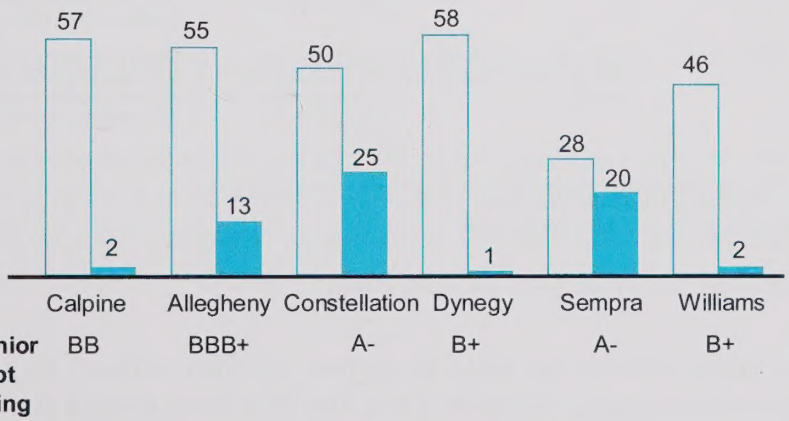
EXHIBIT 14

LOW STOCK PRICES AND POOR DEBT RATINGS MAKE GENERATORS WILLING TO NEGOTIATE



Stock price changes between high in 2001 and closing price on 9/30/02

Dollars per share



Source: Standard & Poors; Fitch; Moody's; Bloomberg; McKinsey analysis

21 In reality, the value saved by ratepayers is much less once the cost of procuring power in the future is included. The estimated net present value of the savings is $1 billion.

good reason to make a deal. The Calpine deal was priced at approximately 70 cents on the dollar for the out-of-market part of the original contract. If similar deals (i.e., 70-80 cents on the dollar) could be reached with the other generators, the state could save an additional $2.0 billion to $3.5 billion. Details on these renegotiations are understandably scarce, but they appear to be a positive step forward.

In addition to negotiating for lower prices and reduced contract duration, the state should consider paying up front for the remaining out-of-market portion of the contracts (or the over-priced portion compared to current forward prices). This would allow the state to accurately estimate the market value of the out-of-market portion of the contracts, which can then be fairly distributed across ratepayers to introduce retail competition sooner. Unfortunately, even though the state has renegotiated some of its contracts, these are still out-of-market, and the state's flexibility in introducing more cost-effective market mechanisms is still limited.

One alternative is for the state to "buy out" the out-of-market portion of the contracts entirely. Successful buyouts in the electric industry have occurred in the past (Exhibit 15). However, there is some risk that actual spot market prices in the future will be more than

EXHIBIT 15

OUT-OF-MARKET CONTRACT BUY-OUTS HAVE BEEN SUCCESSFUL IN THE ELECTRIC INDUSTRY

Example	State	Contract situation	Buy-out process	Results
Niagara Mohawk IPP buy-outs (1998)	New York	• 27 out-of-market IPP contracts, with prices double spot prices	• Negotiated buy-outs with IPPs • Supported by PUC	• $4 billion buy-out; financed with debt repaid through rates • Expected "savings" of $5 billion over 15 years; up-front tax loss allowed by IRS • Generators get less than 100¢ on dollar*
CT Light & Power AES buy-out (1999)	Connecticut	• 180 MW IPP plant with prices more than double spot	• Negotiated process with AES • Approved by PUC	• Up-front "prepayment" of $549 million of out-of-market costs • Ongoing payment at fixed prices near spot prices
Rochester Gas & Electric IPP buy-out (1998)	New York	• Buy-out of 65 MW out-of-market power plant	• Court-based negotiation of buy-out with IPP • Approved by PUC	• Up-front payment of $10 million and $168 million in lost profits over 16 years** • 4% rate increase averted

* Based on statements by Independent Power Producers Association of New York
** In lieu of $725 million in revenues over 25 years
Source: Press clippings; trade press; McKinsey analysis

what might be projected today as part of a buyout.

Another alternative would be for the state to auction off the contracts to private energy companies that can better manage them (Exhibit 16). The state would pay these companies to assume the contracts at an amount set by the auction. If the contracts are auctioned off

EXHIBIT 16
AUCTIONING CONTRACT OBLIGATIONS TO THIRD PARTIES HAS ALSO WORKED AS AN ALTERNATIVE TO BUY-OUTS

Example	State	Contract situation	Buy-out process	Results
New England Electric IPP contracts	Massachusetts	• 1,100 MW of out-of-market IPP contracts	• Negotiated takeover of IPP obligations with third parties as part of standard cost filings	• US Generating Company (US Gen) agreed to assume control • NEES agreed to pay $150 million-170 million annually for 10 years to cover US Gen losses
Ontario Hydro (proposed) IPP contracts (1998*)	Ontario, Canada	• Desire to transfer management of 1,700 MW of out-of-market IPP contracts	• Solication of bids from qualified buyers	• Belief by Ontario Hydro that bidding would "determine what value the marketplace would put on these contracts" • Results undetermined
United Illuminating IPP contracts (1999)	Connecticut	• 64 MW of out-of-market IPP contracts • Desire to exit default service provider role	• Solicitation of fixed price bids from competitive suppliers to provide retail supply	• Enron offered 4.5¢ prices for 4 years of service • Agreed to assume the contract obligations • Immediately bought the contracts out for $144 million

* Year program announced
Source: Press clippings; trade press; McKinsey analysis

after the one-on-one renegotiations, the auction amount might still be less than the renegotiated contract price, thus yielding additional savings to the state. In either of these alternatives, the state should retain skilled negotiators with energy experience to provide advice during these transactions.

The state could then finance the cost of a buyout or an auction by issuing a revenue bond. The bond could be repaid through customers' energy bills, by imposing a non-bypassable charge that every retailer would be required to collect, or through exit fees if a customer decides to leave the grid. This would be similar to the current nuclear decommissioning charge that all customers pay. In any event, a buyout or an auction could allow retail competition to be re-introduced sooner because the state could more accurately estimate the charges that ratepayers would need to incur to cover the DWR contract costs.

MANAGE EXISTING CONTRACTS MORE EFFICIENTLY

While the DWR contracts are still in place, the state can take steps to manage them more efficiently. By doing so, the state could save Californians over $1 billion[22] over the term of the contracts (Exhibit 17). Currently, power from the contracts is automatically dispatched regardless of whether lower-cost sources are available. In instances where the contract

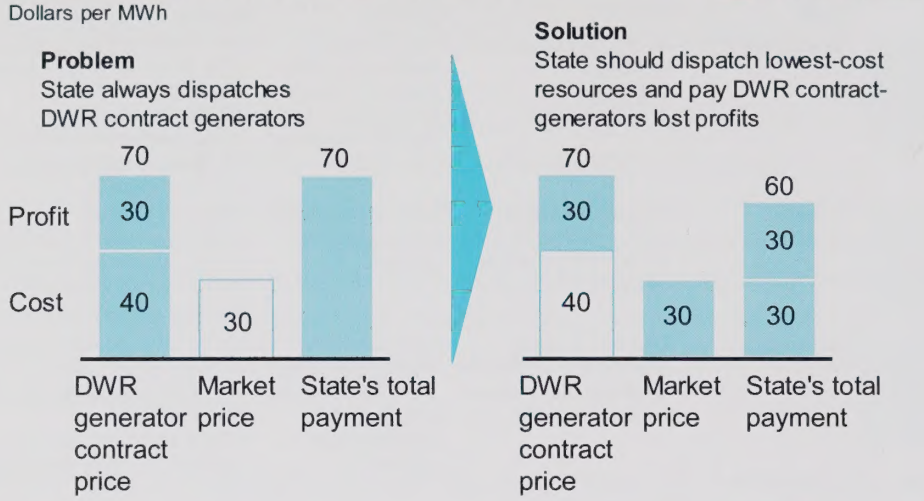
22 $1 billion alone can be saved by taking all the 6x16 peak contracts (6 days per week for 16 hours) running them only 5 days per week for 8 hours (5x8) and paying the generators lost profits during the time they do not generate. The sum is in today's dollars. Baseload contracts are assumed to run as contracted.

EXHIBIT 17
THE STATE CAN REDUCE COSTS THROUGH EFFICIENT DWR CONTRACT MANAGEMENT

ILLUSTRATIVE

Payment by state

Dollars per MWh



Source: McKinsey analysis

provider has higher operating costs than competitive providers, it may actually be cheaper to simply pay the power provider not to generate – by paying its lost profits – and buy power from the market. If such an arrangement could be negotiated, it would lead to significant cost savings, as well as reduced gas and water usage and lower overall emissions since higher-cost power tends to be produced by less efficient plants.

* * *

CONCLUSION

California needs an integrated power policy to fully resolve the energy crisis of 2000-2001. Without an integrated policy, such as has been presented here, the state will continue to suffer from some of the highest power prices in the nation, wavering business commitment, and low generator interest in investing in California. In addition to providing a framework for market participation and market rules, an integrated power policy should also be the basis for the development of a focused and accountable set of agencies that would monitor the market, set/review rules, and administer different programs as needed. California cannot wait any longer for the resolution of the crisis. The costs of inaction are far too high.

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